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S/069/60/022/02/013/024
D034/D002

RS: Mikhaylov, N.V., Mayboroda, V.I., Nikolayeva, S.S.
: Preparation and Properties of Lyophobic Colloids of
Fiber Polymers
DICAL: Kolloidnyy zhurnal, 1960, Vol XXII, Nr 2, pp 223-228
(USSR)
ACT: The authors report on the search of methods to pre-
pare colloidal solutions of fiber-forming polymers
(polycaprolactam and polyethyleneterephthalate) and
on the study of some physico-chemical properties of
these solutions. The authors have shown that aqueous
colloidal solutions can be obtained with the ordinary
method of condensation precipitation from true so-
lutions of polycaprolactam in formic acid, sulphuric
acid and glycerine (the authors obtained colloidal
solutions of a polymer concentration of 0.09-0.12,

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ration and Properties of Lyophobic Colloids of Fiber Polymers

0.5 and 2% respectively) and of polyethyleneterephthalate in dimethylformamide (4.5% polymer concentration in the obtained solution). The developed methods (for further particulars see article) hold only for laboratorial practice. It was further established that the colloidal sol of polyethyleneterephthalate is stable for several weeks. The particles are negatively charged, the ζ -potential having a value of 10.8 mV. The isoelectric state sets in at pH 3.8. The polycaprolactam sol has a stability of five to six days. The charge is positive; the ζ -potential equals 33.3 mV. The sol particles of polycaprolactam and polyethyleneterephthalate have an amorphous structure and the shape of regular globules. The size of such globules is equal to 500-1000 Å. The authors mention a number of scientists. In their

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introductory notes they refer to B.A. Dogadkin, S.S. Voyutskiy, Panich, B.V. Shtarkh, D. Sandomirskiy and others for the study of the properties and the processing of latexes of synthetic and natural rubber [Ref. 2]. Dogadkin studied the process of preparing aqueous dispersions of rubber by means of solvent exchange [Ref. 2]. S.A. Glikman and L.V. Komarova [Ref. 3] devoted works to the study of the mechanism of the formation of lyophobic polymer sols in organic solvents. During their investigation the authors determined the sign of the charge and the value of the ζ -potential of the colloidal particles with the device designed by A.I. Rabinovich and Ye. F. Fadimen [Ref. 6]. The authors further refer to P. A. Rebinder, who underlined the important structural-mechanical effect of stabilizers. V.P. Kovaleva

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ration and Properties of Lyophobic Colloids of Fiber Polymers

helped the authors by carrying out the investigation on the structure of the colloidal particles. For this part of the study V.P. Kovaleva used the EM-3, electron microscope with a resolving capacity of 50 Å. The authors finally mention Z.Ya. Berestneva, T.A. Koretskaya and V.A. Kargin [Ref. 8], who explain the presence of chain structures in colloidal systems with the assumption of highly active linkage-favoring sections on the surface of globular particles. There are 2 tables and 16 references, 12 of which are Soviet and 4 English. IX

ATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna, Mytishchi (Scientific Research Institute of Synthetic Fibers, Mytishchi)

ATED: December 7, 1958

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S/183/61/000/001/005/006
B101/B205

AUTHORS: Mikhaylov, N. V., Karetina, T. I., Pokrovskaya, N. B.

TITLE: Stability of solutions of chlorinated polyvinyl chloride mixed with nitrocellulose

PERIODICAL: Khimicheskiye volokna, no. 1, 1961, 24-29

TEXT: A study has been made of the compatibility of different polymers in a common solution and of the practical use of polymers with new compositions for the purpose of checking data published in Ref. 9 on the compatibility of chlorinated polyvinyl chloride (CPVC) with acetyl cellulose. Solutions of CPVC and nitrocellulose (NC) have been studied at a ratio of CPVC:NC = 85:15, 50:50, or 15:85%. The stability of these solutions has been determined, and the distribution of the components on separation of the solution into various layers has been calculated by determining the N content of the upper layer. Like in the case of acetyl cellulose, these systems are unstable. The fact that the viscosity of the mixture is much higher than would correspond to the additive value is indicative of vigorous interaction between CPVC and NC. Fibers with the following data are

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B101/B205

Stability of solutions ...

obtained from such solutions: elementary fiber count: 2200-4400; breaking length: 14-18 km; elongation: 18-29%; number of double flections leading to break: 900-1200. For the production of the fiber it was, however, necessary to determine the stability. Fig. 3 shows stability as a function of concentration. At concentrations of more than 20%, stability is sufficient for commercial use. Viscosity as a function of composition is compared in Fig. 5 with stability as a function of composition. Stability was determined visually. The visible separation into two layers was taken as the limit of stability. Chemical analysis has confirmed the visual observations. At a temperature of 90°C, separation into layers occurs within 2.5 hr. As the volumes of the separated layers depend on the content of the various components, a calibration curve may be used to determine the composition without chemical analysis. The incompatibility of the two components is confirmed by the constitution diagram of Fig. 8. Separation starts already at very low concentrations. It was found that polyvinyl chloride is almost incompatible with NC. Concerning the separation into layers, the following conclusions have been drawn on the strength of the Tyndall effect, the possibility of separating the components by centrifuging (the concentration of the two phases differs from that of the initial

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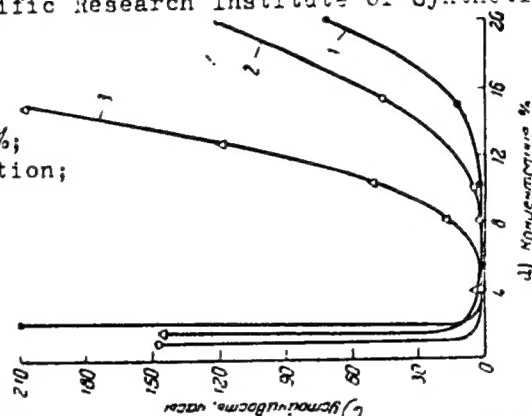
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stability of solutions ...

phase), and of microscopic studies: Interaction occurs between solvent and components; the polymer with the higher solubility carries away a larger amount of the solvent when centrifuged; the solution of the components is a fine-disperse emulsion in which the dispersed substance is the polymer with the lower amount, whereas the dispersing agent is the solution of the polymer with the larger amount. There are 8 figures and 10 references: 9 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: VNIIV (All-Union Scientific Research Institute of Synthetic Fibers)

Legend to Fig. 3: CPVC:NC; 1: 85%:15%;
2: 50%:50%; 3: 15%:85%; a) concentration;
b) stability, hr.



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TOKAREVA, L.G.; MIKHAYLOV, N.V.; POTEMKINA, Z.I.; KOVALEVA, M.V.;
BORIK, A.G.; ZEMSKOVA, G.N.; ZOTOVA, Ya.B.

Stabilization of polyamide fibers. Khim.volok. no.3:15-21 '61.
(MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna (for Tokareva, Mikhaylov, Potemkina, Kovaleva). 2. Klinskiy
kombinat (for Borik, Zemskova). 3. Mytishchinskiy zavod (for
Zotova).

(Textile fibers, Synthetic)

MIKHAYLOV, N.V.; NIKOLAYEVA, S.S.; MAYBORODA, V.I.

Effect of surface tension on interfacial condensation. Vysokom.
soed. 3 no.7:991-994 J1 '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

(Polymerization) (Surface tension)

26299

S/190/61/003/008/012/019
B110/B218

15 5550

AUTHORS: Faynberg, E. Z., Mikhaylov, N. V.

TITLE: Thermochemical criterion of plasticized drawing

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 8, 1961,
1234-1237

TEXT: The Lavan fiber obtained from polyethylene terephthalate cannot be cold-drawn due to high intramolecular interaction. To avoid the drawbacks of drawing above vitrification temperature (80°C), the authors tried to reduce the intramolecular interaction by adding a plasticizer. In this, the thermal effects of interaction were measured by means of an adiabatic column. Results are given in the Table. The experiments showed that equilibrium was established within 20-30 min, and that the major part of heat was liberated at the beginning of interaction. Based on their experimental data, the authors stated the following: (1) Cold-drawing is only possible with such plasticizers as exhibit a thermal effect of interaction with the fiber which considerably differs from zero; (2) maximum drawing of the fiber will be brought about with a concentration Card 1/4

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S/190/61/003/008/0.2/019
B110/B218

Thermochemical criterion of ...

of the plasticizer which exerts a thermal effect of interaction that is close to or even equal to zero; (3) this rule is supposed to hold also for other fibers obtained from polar polymers, which have a high vitrification temperature. There are 1 table and 6 references: 5 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: Ref. 4: B. F. Boyer, R. S. Spenser, J. Polymer Sci., 2, 157, 1947.

ASSOCIATION: Nauchno-issledovatel'skiy institut iskusstvennogo volokna
(Scientific Research Institute of Synthetic Fibers)

SUBMITTED: December 1, 1960

Table. Thermal effects of interaction of different reagents with Lavsan.
Legend: (1) Test number; (2) reagent; (3) concentration of the reagent, %; (4) duration of action of the reagent, min; (5) capability of being cold-drawn; (6) notes; (7) dimethylformamide; (8) ditto; (9) ethanolamine; (10) aniline; (11) dioxane; (12) urea; (13) hydrochloric guanidine; (14) ethyl alcohol; (15) glycol; (16) glycerin; (17) acetone; (18) solution saturated

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MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Discussion on cellulose phases. Vysokom.soed. 3 no.9:1430-1432
S '61. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

(Cellulose)

S/844/62/000/000/100/129
D204/D307

UTHORS: Mikhaylov, N. V., Tokareva, L. G., Bratchenko, T. D.,
Karpov, V. L. and Malinskiy, Yu. M.

ITLE: The action of γ radiation on artificial fibers

OURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khi-
mii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962,
589-595

EXT: The effects of 0.05 - 1000 Mrad doses on polyamide and poly-
ster fibers, and the possibility of improving the thermal stabi-
ity of synthetic fibers and improving their adhesion to rubber by
he addition of various monomers, were investigated. Polyethylene
erephthalic fiber was practically unaffected under doses of up to
00 Mrad, owing to the stabilizing effect of the aromatic groups,
hilst a caprone fiber was already affected at 1 Mrad. The specific
iscosity (η) of 0.5% solutions of irradiated caprone filaments
nd single fibers (diameter respectively 0.03 and 0.7 mm) was mea-
ured. For the thinner fiber, η increased in vacuum and decreased

ard 1/3

the action of γ radiation ...

S/844/62/000/000/100/129
D204/D307

in air, whilst η of the monofiber increased when the latter was irradiated both in the presence and absence of air. This, and the changes in the strength and elongation showed that polyamide fibers undergo oxidative processes on irradiation; the greater changes in the presence of O_2 were particularly pronounced for the thinner fibers. Thin fibers underwent destruction when irradiated in air, whilst thicker specimens became structurized owing to the less ready diffusion of O_2 into the mass; structurization of the thicker fibers was also observed in vacuum. In contrast to the caprone fiber which was mainly structurized in both amorphous and crystalline states on irradiation, a terylene fiber was largely destroyed in the amorphous and structurized in the crystalline state. This difference in the behavior of polyamide and polyester fibers is ascribed to the considerably higher crystallinity of the latter. The above phenomena should be kept in mind when artificial fiber materials are to be utilized in practice. The effects of additions of acrylonitrile, styrene, toluyl diisocyanate, hexamethylenediisocyanate and vinylpyridine to the caprone fiber were studied, with

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The action of γ radiation ...

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D204/D307

doses of 0.01 - 50 Mrad, finding that in all cases, for a dose of 50 Mrad, the loss in strength was considerably reduced by the monomers, both at 20 and at 80°C. Acrylonitrile grafted on to the caprone fiber. There are 3 figures and 4 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennykh volokon; Fiziko-khimicheskiy institut im. L. Ya. Karpova (All-Union Scientific Research Institute of Artificial Fibers; Physico-Chemical Institute im. L. Ya. Karpov)

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S/183/62/000/003/002/002
B117/B144

THOR: Mikhaylov, N. V.

TLE: Main trends in the scientific and technical development of the synthetic fibers industry arising from the resolutions passed at the XXII Party Congress of the CPSU

RIODICAL: Khimicheskiye volokna, no. 3, 1962, 8 - 9

XT: This is a brief summary of a report given at a plenary meeting of the otasleyovoye soveshchaniye rabotnikov promyshlennosti khimicheskikh volokon (Special Conference of Workers of the Synthetic Fibers Industry), held in the Kiyevskiy kombinat (Kiyev Combine) from January 22 to 27, 1962. The main scientific and technical problems in the development of the synthetic fibers industry were discussed. It is the aim of this development to meet Soviet demands for raw material with various properties, synthetic fibers for textiles, very strong and highly elastic fibers for ropes, driving belts, synthetic fibers resistant to chemical action, heat, and light, special fibers with insulating and semiconducting properties, etc. The promotion of scientific research in existing institutes

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VNIIV, VNIISV) and their branches and laboratories was found to be necessary on a very broad basis, also the establishment of new specialized scientific research institutes and centers for the synthetic fibers industry, and the intensification of their collaboration with other plants. The main tasks of industrial laboratories, planning and design institutes are as follows: supply of new plants planned and set up within the Seven-Year Plan, reorganization of plants already in operation, and gaining of scientific and technical experience in designing and building new machines and apparatus. A number of production methods developed by the VNIIV and other plants were mentioned. The following tasks were also mentioned: continuation of investigations and application of the results of research in the production of cellulose fibers; increase of the production of synthetic fibers from inexpensive raw material (e.g. natural gas, by-products of petroleum refining); increase in the production of polycaprolactam, polyethylene terephthalate, polypropylene, polyvinyl alcohol, polychlorovinyl, polyacrylonitrile, and special fibers from cyclic, elemental-organic, and chelate polymers; development of efficient methods for producing the above-mentioned fibers; development of efficient, continuously operating units for obtaining melts and polymer solutions; design and

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main trends in the scientific...

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B117/B144

...ing of a pilot plant for the direct production of polyamide and poly-
...ster fibers from monomers by interfacial condensation, development of
...paratus for 1-stage polymerization in the solid phase. In this connec-
...ion, it was found necessary to establish special institutes, expand
...scientific research and training centers, and train highly qualified
...scientific specialists and engineers for the synthetic fibers industry.

ASSOCIATION: VNIIV

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TOKAREVA, L.G.; MIKHAYLOV, N.V.; ROZOVA, N.N.; KIRPICHNIKOV, P.A.

Lightfastness of polypropylene and fiber based on it. Khim.
volok. no.3:23-25 '62. (MIRA 16:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstven-
nogo volokna.
(Propene) (Textile fibers, Synthetic) (Photochemistry)

MIKHAYLOV, N.V.; FAYNBERG, E.Z.

Heat capacity and phase state of cellulose fibers of various structure. Vysokom.sped. 4 no.2:230-236 P '62. (MIRA 15:4)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.
(Hydrocellulose--Thermal properties)

S/196/6.004/00.1
BIO/BIO

AUTHORS: Mikhaylov, N. V., Faynberg, E. Z., Gorbacheva, V. A., Ch'eng
Ch'ing-hai

TITLE: Compatibility of the system polyethylene - polypropylene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1966
237 - 241

TEXT: A method of combining polyhydrocarbons from their solutions has been developed. A mixture of low-density polyethylene (PE) and isotactic polypropylene (PP) was produced via o-xylene or white spirit as melt with different PE : PP ratios. Dissolution took 40 - 50 min at t = 160°C (total concentration = 0.1; 0.5; 5%). The precipitate formed by cooling to 80 - 85°C was eluted with acetone to remove the solvent. The physico-chemical properties of polymer mixtures were studied by (a) differential thermal analysis; (b) thermochemically; (c) density measurement. The endothermic effects of the heating curves for pure polymers and copolymers correspond to the temperature range of melting. The two endothermic effects of the curves for polymer mixtures correspond to the temperature range of

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S, 100, 100, 100, 100
B100/B100

Compatibility of the system

the transition of pure polymers, and only for mixtures 7.5 : 2.5; 9.5 : 0.5; and 9.8 : 0.2, they showed only one endotherm, like the curves for the initial polymers. The concentration range of compatibility is limited; concentration decrease of PE and increase of PP effect demixing. Since the temperature range of melting of copolymers differs by 15 - 18°C from that of pure PE, the difference should be smaller for combined mixtures. This also agrees with Flory's idea of decrease of the melting point when plasticizing one polymer by another (or high-molecular). Comparisons of the heat capacity with those of the copolymer are used as a criterion for the degree of compatibility of polymer mixtures. The heat capacities of pure homopolymers are compared each other, and strongly differ from those of copolymers. The polymer mixture 8 : 2 has maximum heat capacity and optimum compatibility. The density (0.915) of the copolymer corresponds to maximum heat capacity (0.500). The copolymer has a lower than the additive density, and its molecular packing of lower density. The density of all mixtures is lower than the additive value. The mixture 7.5 : 2.5 has maximum deviation. This proves a plasticizing effect of PE on PP, extending the flexibility of the polymer chains of PE. This effect is due to the stiffness of PP, and facilitates its compatibility with PE. (continued)

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compatibility of the system.

S, 190, 6, 004, 00, 0
B, 0, B, 0

figures, 2 tables, and 3 references: 2 Soviet and 1 non Soviet. The
reference to the English-language publication reads as follows: R. Kae,
Polymer Sci., 42, 15, 1960.

ASSOCIATION: Nauchno-issledovatel'skiy institut iskusstvennykh volokna
(Scientific Research Institute of Synthetic Fibers)

REMITTED: February 9, 1961

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39847

1/190/62/004/008/005/016
B101/B138

4.4150
4.3300

Author: Mikheylov, M. V., Shablygin, M. V.

Subject: Procedure for producing and evaluating infrared absorption spectra of fibers in polarized light

Publication: Vysokomolekulyarnyye soyedineniya, v. 4, no. 8, 1962, 1155-1162

Abstract: IR absorption spectra of fibers in polarized light were discussed and compared, with parallel light rays passed through (A) a number of parallel fibers and (B) a single fiber. Method A is based on the theories of H. D. B. Fraser (J. Opt. Soc. America, 48, 1017, 1958) and O. O. Ingman (J. Chem. Phys., 27, 322, 1957). Immersion band compensation and the effect of fiber packing, i. e. the effect of the packing coefficient on the optical density of the absorption bands, are discussed. Equations are derived for calculating the equivalent immersion layer and packing coefficient. The theoretical results were confirmed by experiments with rayon fibers, using hexachloropropylene or vaseline oil as immersion liquid. For method B, a special reflecting microscope was used. A correction for loss in light intensity due to scattering from the fiber surface

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procedure for producing and evaluating ... B101/B136

... successfully reduced by rolling the fiber. This imparts a qualitative character to the absorption spectra. CBr_4 was used as immersion liquid, and a holder was designed so that photomicrographs could be made of single fibers at up to 250°C . Comparison of the two types of spectra provides information on the fiber structure. There are 8 figures.

ORIGIN: Vsesoyuznyy nauchno-issledovatel'skiy institut
iskusstvennogo volokna (All-Union Scientific Research
Institute of Synthetic Fibers)

DATE: May 4, 1961

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39849

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3101/3180

5.3833

AUTHORS: Mikhaylov, N. V., Tokareva, L. G., Buravchenko, K. K.,
Terekhova, G. M., Kirpichnikov, I. A.

TITLE: Stabilization of polyethylene terephthalate melts

COLLIDIONAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 3, 1962,
1186-1192

TEXT: In this fifth report on the ageing of synthetic fibers, the
authors studied the thermooxidative decomposition of polyethylene
terephthalate (PET) (initial intrinsic viscosity $[\eta] = 0.245$; after
reprecipitation $[\eta] = 0.256$) at 170 - 220°C (methods see Kolloidn. zh.,
15, 576, 1956) and their inhibition by esters of phosphorous acid.

Results: (1) Heating to 220°C in N₂ shows no change in $[\eta]$. When heated
in air, $[\eta]$ decreased more slowly in PET with reprecipitation refining
than without. It is therefore assumed that thermooxidative processes
occur with the formation of COH and COOH groups and destruction of the
ester bond. The PET fiber Lavsan behaved similarly: initial breaking
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Stabilization of polyethylene ...

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2101/5180

strength (kg/mm^2) = 42.8; after 4 hrs at 170°C in N_2 , 41.0 and at 210°C in N_2 , 36.5; after 4 hrs at 170°C in air, 39.5, and at 210°C , 14.2.

(2) Triphenyl phosphite (I), tri-p-octyl-phenyl phosphite (II), tri-1-dodecyl phenyl phosphite (III), and tri-p-ter-butyl phenyl phosphite (IV) inhibit the thermal decomposition of PET, and increase its molecular weight and stability. The best moment for adding the inhibitor is at 50-70% polycondensation of PET. (3) After 2 hrs at 220°C the breaking strength of PET without inhibitor was 47% the initial value 71% with I, 66% with II, 78% with III, and 75% with IV. The longest induction period and smallest loss in molecular weight were found with IV. The inhibiting effect of phosphites is attributed to the fact that they hydrolyze much more easily than PET which is thus protected against hydrolysis. There are 6 figures and 4 tables. The most important English-language reference is: J. L. Ward, Nature, 80, 141, 142, 1957.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut
iskusstvennogo volokna (All-Union Scientific Research
Institute of Synthetic Fibers)

Card 2/3

stabilization of polyethylene ...

S/190/62/004/008/008/016
B101/E180

UBMITTED: May 8, 1961

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S/020/62/144/002/023/028

B101/B110

15 5540

AUTHORS: Vlasov, A. V., Glazunov, P. Ya., Mikhaylov, N. V., Rafikov, S. R., Tokareva, L. G., Tsetlin, B. L., and Shablygin, M. V.

TITLE: Formation of oriented structures in radiation-induced polymerization of vinyl monomers on fibers

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 2, 1962, 382 - 383

TEXT: An attempt was made to obtain oriented polymers by polymerizing the monomer from the gas phase on oriented macromolecules of fibers acting as "matrices". The experiments were made with a two-chamber apparatus as used for graft polymerization of vinyl monomers on mineral particles (cf. B. L. Tsetlin et al., Tr. 2-go Vsesoyuzn. soveshch. po radiatsionnoy khimii, Izd. AN SSSR, 1962). One chamber contained caprone cord fiber heated to 80°C, and the other contained completely anhydrous acrylonitrile (40°C). Irradiation was made with X-rays (dose rate, $3 \cdot 10^{15}$ ev/cm³·sec) for 3 - 6 hrs at 10^{-4} - 10^{-5} mm Hg. The weight of the fiber increased by 15 - 33 %. The perpendicular dichroism in the -C≡N stretching vibrations (2235 cm⁻¹),

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Formation of oriented structures in ...

detected by spectroscopy, proved the orientation of the polymer. Experiments with acrylonitrile and non-oriented fiber as well as with liquid acrylonitrile and oriented fiber showed no dichroism. The liquid monomer molecules are assumed to prevent orientation. Further experiments with polymers, man-made and natural fibers used as "matrices" are under way. There is 1 figure.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences USSR). Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

PRESENTED: January 19, 1962, by V. A. Kargin, Academician

SUBMITTED: January 12, 1962

Card 2/2

KOLESNIKOV, G.S., otv. red.; ANDRIANOV, K.A., red.; LOGADKIN, B.A., red.; DOLGOPILOSK, B.A., red.; YENIKOLOPYAN, N.S., red.; KARGIN, V.A., red.; KOZLOV, P.V., red.; KOROTKOV, A.A., red.; KORSHAK, V.V., red.; LAZURKIN, Yu.S., red.; MEDVEDEV, S.S., red.; MIKHAYLOV, N.V., red.; PASYNSKIY, A.G., red.; SLONIMSKIY, G.L., red.; SMIRNOV, V.S., red.; TSVETKOV, V.N., red.; FREYMAN-KRUPENSKIY, D.A., tekhn. red.

[Heterochain high-molecular weight compounds] *eterotsepye vysokomolekuliarnye soedineniia*; sbornik statei. Moskva, Izd-vo "Nauka," 1963. 246 p. (MIRA 17:3)

BRUYEVICH, N.V.; BREYTMAN, Z.M.; REZNIKOV, Yu.M.; MIKHAYLOV, N.V.,
inzh., retsenzent; KURATTSEV, L.Ye., red.; GORDEYEVA,
L.P., tekhn. red.

[Technical measurements in the bearing industry] Tekhni-
cheskie izmereniia v podshipnikovoi promyshlennosti. Mo-
skva, Mashgiz, 1963. 198 p. (MIRA 17:2)

KOZLOV, P.V., otv. red.; ANDRIANOV, K.A., red.; DOGADKIN, B.A., red.;
DOLGOPLOSK, V.A., red.; YENIKOLCPYAN, N.S., red.; KARGIN,
V.A., red.; KOLESNIKOV, G.S., red.; KOROTKOV, A.A., red.;
KORSHAK, V.V., red.; LAZURKIN, Yu.S., red.; MEDVEDEV, S.S.,
red.; MIKHAYLOV, N.V., red.; PASYNSKIY, A.G., red.;
SLONIMSKIY, G.L., red.; SMIRNOV, V.S., red.; TSVETKOV, V.N.,
red.; FREYMAN-KRUPENSKIY, D.A., tekhn. red.

[Adhesion of polymers] Adgeziia polimerov, sbornik statei.
Moskva, Izd-vo AN SSSR, 1963 142 p. (MIRA 16:10)
(Polymers) (Adhesion)

KOLESNIKOV, G.S., otv. red.; ANDRIANOV, K.A., red.; DOGADKIN, B.A., red.; DOLGOPLOSK, B.A., red.; YENIKOLOPYAN, N.S., red.; KARGIN, V.A., red.; KOZLOV, P.V., red.; KOROTKOV, A.A., red.; KORSHAK, V.V., red.; LAZURKIN, Yu.S., red.; MEDVEDEV, S.S., red.; MIKHAYLOV, N.V., red.; PASYNISKIY, A.G., red.; SLONIMSKIY, G.L., red.; SMIRNOV, V.S., red.; TSVETKOV, V.N., red.; FREYMAN-KRUPENSKIY, K.A., tekhn. red.

[Carbochain high-molecular weight compounds] Karbotsepye vysokomolekuliarnye soedineniia; sbornik statei. Moskva, Izd-vo AN SSSR, 1963. 287 p. (MIRA 17:1)

8/183/63/000/002/003
A051/A126

AUTHORS: Mikhaylov, N.V., Mayboroda, V.I., Vorob'yeva, T.V., Bilik, I.M.

TITLE: Polymer production by the interphase polycondensation method

PERIODICAL: Khimicheskiye volokna, no. 2, 1963, 19 - 22

EXT: A study was conducted to establish production conditions of high-melting polymers and the possibility of a direct film formation from the corresponding monomers (with subsequent fiber formation) during the polycondensation process at the phase interphase. Fiber formation during polycondensation could result in high-melting fibers obtained by a simple and more effective method. A high-melting polyether capable of forming film on the phase interphase was produced. The effect of the concentration of the initial monomers, of their ratio and the nature of the organic solvents used, on yield, specific viscosity and film formation was established. The monomers investigated were: dichloroanhydrides of sebacic, adipic and terephthalic acids, and also hydroquinone and 4,4'-dicydiphenylpropane (Dian). The melting point was determined according to the differential-thermal analysis method (N.S. Kurnakov). The ability of the

ard 1/3

S/183/63/000/002/002/003

A051/A126

Polymer production by the interphase

x-monomers to form film during the polycondensation process on the phase interphase was tested at different concentrations, temperatures and solvents. Optimum conditions for the polymer production were found to be: reaction temperature 20°C, concentration (of the triethylbenzyl ammonium hydroxide) 0.2%. The polymer obtained under these conditions had a viscosity of 0.43, a yield of 90% of the theoretical value, melting range 345 - 350°C. A firm and elastic film was produced. These properties and the rate of formation of the film on the phase interphase were found to depend on the nature of the organic solvent used to dissolve the dichloroanhydrides. Of various other solvents tested, cumol (isopropylbenzene) was found to yield the highest rate of film formation. The obtained polymers were tested by x-ray and thermographic methods at the VNIIV. The synthesized polymers were found to have a crystalline structure. The highest degree of crystallinity was found in the polymer produced from dichloroanhydride of adipic acid and hydroquinone. X-ray structural analysis showed that heating and cooling of the investigated polymers results in phase shifting connected with melting and polymer crystallization. The highest melting point (345 - 350°C) was obtained for the polymer produced from Dian and dichloroanhydride of terephthalic acid. There are 6 figures and 3 tables.

Card 2/3

polymer production by the interphase

8/183/63/000/002/002/003
A051/A126

ASSOCIATION: VNIIV and IRYeA (B111k)

REMITTED: May 18, 1962

3/3

MIKHAYLOV, N.V.; GORBACHEVA, V.O.; KHAIT, E.V.; KACHANYUK, Yu.K.;
KHOKHLOVA, N.S.

Molecular structure and the physicochemical properties
of polyamide cord. Khim. volok. no.4:26-28 '63.

(MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusst-
vennogo volokna.

L 17471-63 EMP(1)/ENT(m)/BDS AFFTC/ASD Pc-4 RM
ACCESSION NR: AP3004763 8/0183/63/000/004/0066/0067
AUTHORS: Mikhaylov, N. V.; Strashnova, T. T.; Tarekhova, O. M. 15 62
TITLE: Method of determining phosphorus in polymers and their fibers
SOURCE: Khimicheskiye volokna, no. 4, 1963, 66-67
TOPIC TAGS: colorimetry, P, polyester, polyamide, ammonium molybdate, MoP complex, ferrous iron, phosphorus
ABSTRACT: The colorimetric method developed for determining P in polymers (including P-containing heterochain polymers such as polyesters and polyamides) can be used with P concentrations as low as 10^{-5} mg./l. with an accuracy of 0.1%, absolute value. Ammonium molybdate is used to form an MoP complex which is reduced with ferrous iron released from $\text{NH}_4\text{Fe}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ by the presence of Na_2SO_3 . Orig. art. has: 1 figure, 2 formulas.
ASSOCIATION: VNIIV (All-union scientific research institute of synthetic fibers).
SUBMITTED: 11Dec63 DATE ACQ: 20Aug63 ENCL: 00
SUB CODE: MA, EL NO REF SOV: 003 OTHER: 007
Card 1/1

AFANAS'YEVA, G.N.; VOL'F, L.A.; MEOS, A.I.; GORBACHEVA, V.O.; MIKHAYLOV, N.V.;
MIL'KOVA, L.P.

Thermoplasticization stretching of polyvinyl alcohol fibers.
Khim. volok. no.5:16-19 '63. (MIRA 16:10)

1. Leningradskiy tekstil'nyy institut imeni S.M. Kirova (for Afanas'yeva, Vol'f, Meos). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Gorbacheva, Mikhaylov, (Mil'kova).

MIKHAYLOV, N.V.; GORBACHEVA, V.O.; IYEVLEVA, A.K.

Determination of the specific volumes of synthetic fibers at
elevated temperatures. Khim. volok. no.5:26-28 '63.

(MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

VLASOV, A.V.; MIKHAYLOV, N.V.; TOKAREVA, A.I.; RAFIKOV, S.R.;
TSETLIN, B.L.; GLAZUNOV, V.A.

Radiation-induced graft polymerization from the gas phase.
Khim.volok no. 6:24-28 '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna (for Vlasov, Mikhaylov, Tokareva).
2. Institut elemento-organicheskikh soyedineniy AN SSSR (for Rafikov, Tsetlin).
3. Institut fizicheskoy khimii AN SSSR (for Glazunov).

STABLYGIN, M.V.; MIKHAYLOV, N.V.

Immersion method used for obtaining the infrared absorption spectra of fibers in the polarized light. Khim.volok no.6:51-55 '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

1. The first step is to identify the problem. This involves understanding the situation, gathering information, and defining the problem clearly.

Method of evaluation of the degree of hydration process.
 Calcium hydroxide system. — 0.01 mol. 2M Ca(OH)₂ solution. 10 ml.
 (MISE 1779)

9008-65 EPA(s)-2/EWT(m)/EPF(o)/EPF(n)-2/EPR/EPA(w)-2/EMP(j)/T/EMP(b) Po-4/
-4/Es-4/Pt-10/Pu-4/Pab-24 RPL/SSD/ASD(mp)-2/ASD(m)-3/AFETR/AFWL/BSO RM/WH/

SESSION NR: AP4006286

8/0286/63/000/023/0040/0040

THORS: Tsetlin, V. L.; Vlasov, A. V.; Glasunov, P. Ya.; Mikhaylov, N. V.;
atalakh, I. I.; Polak, L. S.; Rafikov, S. R.; Tokareva, L. G.

TLE: A method for preparing graft copolymers. Class 29, no. 158979 15

URGE: Byul. izobret. i tovarn. snakov, no. 23, 1963, 40

FIG TAGS: copolymer, graft copolymer, copolymerisation, radiation copolymerisa-
on, gas phase radiation copolymerisation, synthetic fiber, synthetic film,
electrical property, magnetic property, mechanical property, monomer vapor
radiation, acetylene series monomer, acrylonitrile, heat treatment, acetylenic
monomer

STRACT: This Author Certificate introduces a method for obtaining graft
polymers by gaseous phase radiation polymerisation. To obtain fibers and films
with special electrophysical and magnetic properties and of high mechanical
strength, synthetic fibers and films and mineral fibers, such as fiberglass, are
irradiated. This process is conducted in the presence of vaporised monomers of
the acetylene order or acrylonitrile and is followed by a thermal treatment.

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0008-65

SESSION NR: AP1006286

OCIATION: DONS

MITTED: 09/07/62

CODE: 00

DATE ACQ: 09/07/62

NO REF NOV: 000

ENCL: 00

OTHER: 000

2/2

15.8200

15376
S/190/63/005/002/005/024
B101/B102

AUTHORS: Mikhaylov, N. V., Tkareva, L. G., Popov, A. G.
TITLE: Stabilization of polypropylene and of fibers made thereof against heat
PERIODICAL: Vysokomolekulyarnyye soedineniya, v. 5, no. 2, 1963, 188-194

TEXT: The effects due to 0.03 mole/kg additions of stabilizers were compared by measuring the oxygen absorption of the polypropylene at 200, 250, and 300°C and by determining the effect of the stabilizers on the breaking length of fibers drawn from the polymer at 220-250°C. At 200°C, oxidation of the polymer set in without stabilizer after an induction period of 5-7 min. The induction period was prolonged by 2,5-di-tert-butyl-4-methyl phenol (Ionol) to 20 min, by T-24 (F-24) phenol - styrene copolymer to 40 min, by 2,2'-methylene-bis-(4-methyl-6-tert-butyl phenol) (2246) to 120 min and by N,N'-phenyl-cyclohexyl-p-phenylene diamine (4010) to 130 min. At 250°C a two-stage induction period was observed, particularly in the presence of dibenzyl sulfide. The first induction period was

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Stabilization of polypropylene ...

S/190/63/005/002/005/024
B101/B102

10 min, the second ~ 300 min. At 300°C, the absorption curves became complicated in consequence of simultaneous thermooxidation and thermal degradation. The effects of the stabilizers on the polymer and on the drawn polymer fiber were divergent. At 150°C, and with the addition of 2246 or phenol croton aldehyde condensation product Π-26 (P-26), the induction periods were respectively 120 and 130 min for the polymer, but only 45 and 80 min for the fiber. With 4,4'-di-β-naphthyl-p-phenylene diamine, the induction period of the polymer was 10 min, that of the fiber 120 min. Crosslinking, and increased solubility of the stabilizer in the fiber as a result of the drawing, are suggested as explanations of the longer induction period of the fiber compared with the polymer. Reduction of the induction period can be due to the stabilizer becoming insoluble in the fiber or being decomposed in the drawing. This problem calls for further investigation. The effect of the stabilizer on the breaking length (km) and elongation (%) of the fiber after 8 hrs heating at 150°C was studied. The best results were obtained with 2,6-di-tert-butyl-4-methyl-phenyl pyrocatechol phosphite, 2,4-bisobornyl-4-methyl phenol (264), 2,2'-thio-bis-(6-tert-butyl-4-methyl phenol) (KAO-6 [KAO-6]), 2264 and mixtures of stabilizers with sulfur-containing organic compounds. Without stabilizer the polypropylene fiber did not endure the test; with the

Stabilization of polypropylene ...

8/190/63/005/002/005/024
B101/B102

stabilizers mentioned, a residual breaking length of 60-70% was reached. No connection was found between the length of the induction period and the stabilization against heat. A synergetic effect was observed in mixtures, e.g., of 264 + 4010, ratio 1:1 (residual breaking length 67.2%). Particularly, 2,6-di-tert-butyl-4-methyl-phenyl pyrocatechol phosphite, terpene phenols and mixtures of these substances with sulfur- as well as phosphorus-containing compounds are efficient stabilisers of the polypropylene fiber. There are 1 figure and 2 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut
iskusstvennogo volokna (All-Union Scientific Research
Institute of Synthetic Fibers)

SUBMITTED: July 15, 1961

Card 3/3

15397
8/190/63/005/002/008/024
B101/B102

15.880

AUTHORS: Volokhina, A. V., Kudryavtsev, G. I., Mikhaylov, N. V.,
Rokachevskaya, O. P.

TITLE: Study of ring copolymerization. I. Copolymerization of
 α -piperidone with ϵ -caprolactam

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 2, 1963,
206-211

TEXT: The possibility was studied of obtaining high-molecular fiber-
forming polyamides on the basis of α -piperidone by copolymerizing it with
 ϵ -caprolactam (CL). Two techniques were applied: (1) Copolymerization
at 40-45°C, 1-2 mm Hg, CL content 0-80%, and at 90°C with 90 and 100% CL;
(2) in nitrogen atmosphere at 100, 120, and 160°C. The catalysts used
were 2.5 mole% potassium and 1.2 mole% N-acetyl piperidone. Results with
process (1): At 40-45°C, the polymerization time was 6 hrs, at 18-20°C
18 hrs, the yields (~60%) and m.p. of the copolymers depended on the
composition and were always higher than in the homopolymers. Mutual
activation of piperidone and CL was observed. With equimolecular component

Card 1/3

Study of ring copolymerization. ...

S/190/63/005/002/008/024
B101/B102

ratio the m.p. decreased to $\sim 0^{\circ}\text{C}$, so that copolymerization ensued at room temperature. The maximum yield was obtained with 40% piperidone and 60% CL. With equimolecular component, ratio the copolymer contained equally equimolecular parts of the components. Results in process (2): The yield increased with rising CL content. α -piperidone in itself and its 80-90% mixture with CL could not be polymerized under these conditions. The m.p. of the copolymer increased with increasing CL content. The optimum yield, 97%, was obtained with 30% piperidone + 70% CL. The polymerisation time was 4 hrs at 100°C , 2 hrs at 120°C , 1 hr at 160°C . The melting point increases with rising polymerization temperature and reaches $180-185^{\circ}\text{C}$. The molecular weight is not affected by varying the addition of potassium between 1 and 2.5 mole%, but it is reduced when the addition of N-acetyl piperidone is increased from 0.25 to 1 mole%. At $\sim 195^{\circ}\text{C}$, a fiber was drawn from the copolymer melt having an intrinsic viscosity of 0.6, which had 400-500% elongation at room temperature. The increase in reactivity of the α -piperidone in the presence of CL is due to thermodynamic and kinetic particularities of the process, which must be further investigated. There are 4 figures and 1 table. The most important. English-language reference is: N. Joda, A. Mijake, J. Polymer Sci., 43, 117, 1960.

Card 2/3

Study of ring copolymerization. ...

S/190/63/005/002/008/024
B101/B102

ASSOCIATION:

Vsesoyuznyy nauchno-issledovatel'skiy institut
tekstil'nogo volokna (All-Union Scientific Research
Institute of Synthetic Fibers)

SUBMITTED:

July 28, 1961

Card 3/3

13519-63 EMP(1)/EMI(m)/BDS/ES(v) AFFTO/ASD Pc-1/Pe-1 RM

SESSION NR: AF3001151

8/0190/63/005/006/0826/0830

THOR: Nikolayeva, S. S.; Faynberg, E. Z.; Mikhaylov, N. V.

TITLE: Structural characteristics of polyamides obtained by the interfacial polycondensation method

SOURCE: Vy'sokomolekulyarny'ye soedineniya, v. 5, no. 6, 1963, 826-830

PIC TAGS: polyamide, interfacial polycondensation, structural characteristic, nylon fiber, polyamide, density value

ABSTRACT: The inferior physico-chemical properties of nylon fibers synthesized by the interfacial polycondensation method, as compared with those obtained by the classical melt procedure, induced the authors to conduct this study. They investigated nylon 6-6 (polyhexamethylenedipinamide) and nylon 6-10 (polyhexamethylenesecbacamide), with emphasis on the role played by the fiber's density. The fibers are plasticized by immersion in water or in 5% formic acid, and their density was measured at certain intervals until an equilibrium state was established. It took nylon 6-6 nearly 33 days in water and 4 days in formic acid to reach densities of 1.0379 and 1.0200 respectively, the equilibrium densities for nylon 6-10 in water and formic acid being 1.0746 and 1.1889, reached within 14 and 2 days. The

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3519-63

SESSION NR: AP3001151

Stretching of the plasticized fibers at equilibrium was conducted at 175C either on a heated surface or in the plasticizing medium. These, as well as x-ray studies, lead to the conclusion that the low density of the 6-6 and 6-10 nylons was due to their being in a state of nonequilibrium caused by the conditions of intermolecular polycondensation. Orig. art. has: 3 tables.

ASSOCIATION: Vsesoyuzniy nauchno-issledovatel'skiy institut iskusstvennogo volokna
(All-Union Scientific-Research Institute of Synthetic Fiber)

RECEIVED: 14Nov61

DATE ACQ: 01Jul63

ENCL: 00

CODE: 00

NO REF SOV: 009

OTHER: 003

2/2

MIKHAILOV, N.V.; SHABLYGIN, M.V.; VOLOKHINA, A.V.

Mutual effect of monomers during their copolymerization. Vysokom.
soed. 5 no.11:1757 N '63. (MIRA 17:1)

BERESTNEV, V.A.; NAGDASEVA, I.P.; KOZYREVA, Z.M.; TOKAREVA, L.G.;
POTEMKINA, Z.I.; MIKHAYLOV, N.V.; KARGIN, V.A.

Effect of thermal stabilizers on the structure of capron
fibers. Khim. volok. no.2:35-41 '64. (MIRA 17:50)

1. Nauchno-issledovatel'skiy institut spetsial'nykh volokn
(for Berestnev, Nagdaseva, Kozyreva). Nauchno-issledovatel'skiy institut
issledovatel'skiy institut iskusstvennykh volokn (for Tokareva, Potemkina, Mikhaylov).

GORBACHEVA, V.O.; KRASOVA, I.I.; TOKAREVA, L.G.; POTEKINA, Z.I.;
MIKHAYLOV, N.V.

Morphological characteristics of a stabilized capron fiber.
Khim. volok. no.3:19-23 '64. (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusst-
vennogo volokna.

15515-65 EPA(s)-2/EWT(m)/EPF(c)/EPR/ENP(j)/T Pc-4/Pr-4/Ps-4/Pt-10
D/AEDC(a)/AFWL/ASD(p)-3 WW/RM

ACCESSION NR: APA042737

S/0183/64/000/004/0028/0032

AUTHORS: Terekhova, G.M.; Mikhaylov, N.V.; Tokareva, L.G.

TITLE: Effect of heat stabilizers on the synthesis of polyethyl-
eneterephthalate 1

SOURCE: Khimicheskiye volokna, no. 4, 1964, 28-32

OPIC TAGS: polyethyleneterephthalate, synthesis, heat stabilizer,
phosphite heat stabilizer, mechanism, polycondensation kinetics,
specific viscosity, carboxyl content, phosphorus containing polymer,
hydrolysis

ABSTRACT: The effect of phosphite heat stabilizers on the synthesis
of polyethyleneterephthalate (PET) and its properties, and the
mechanism of the action of the additives was studied. The kinetics
of diethylolterephthalate polycondensation were determined from the
amount of ethylene glycol evolved and the amount of energy required
to stir the reaction mixture; the polymer properties were determined
by its specific viscosity (0.5% solution of PET in tricresol), the
carboxyl group content and visually by the degree of coloration. It
was found necessary to increase the amount of catalyst (cobalt acetate
and 1/3

L 15315-65

ACCESSION NR: AP4042737

with antimony trioxide) from 0.02% to 0.03% on weight of DMT when using phosphoric acid esters as stabilizer; otherwise a lower molecular weight polymer was obtained. Addition of the phosphite at the start of the polycondensation retarded the reaction rate; a longer time was required to obtain the same molecular weight material obtained by reaction without the additive. Addition of the phosphite when the reaction was about 70% completed had almost no effect on the polycondensation rate. If polycondensation was conducted in the absence of free ethylene glycol the phosphite had almost no effect on the reaction even if introduced at the start of it. The presence of phosphorus in the polymers shows that the phosphites or their glycolysis (hydrolysis) products react with PET. The amount of phosphorus in the polymer depended on the heat stabilizer used (triphenyl-, tri-p-tert. butylphenyl-, or dodecylphenyl phosphite). Addition of 0.25% phosphite when polycondensation was about 70% complete retarded the destructive reactions (increased the specific viscosity and reduced the number of COOH groups) and improved the color and thermal stability of the PET in comparison to the polymer obtained without phosphite addition. Orig. art. has: 5 tables and 6 figures.

Card 2/3

L 15315-65

ACCESSION NR: AP4042737

ASSOCIATION: VNIIIV

SUBMITTED: 04May63

ENCL: 00

SUB CODE: GC, PH

NR REF SOV: 013

OTHER: 009

Card 3/3

4336-65 EPA(s)-2/EMI(m)/EPF(c)/EPH(j)/T PC-4/Pr-4/PS-4/PT-10 AFML/AEDC(a)/
 SD/ASD(p)-3 WW/RM
 CESSION NR: APL042738 S/O183/64/000/004/0033/0035

THORS: Terekhova, G.M.; Mikhaylov, N.V.; Tokareva, L.G.

TITLE: Heat stability of polyethyleneterephthalate (PET) containing esters of phosphoric acid

SOURCE: Khimicheskiye volokna, no. 4, 1964, 33-35

PIC TAGS: polyethyleneterephthalate, heat stability, phosphite, alkylphenylphosphite, heat stabilizer, specific viscosity, terminal carboxyl group, polycondensation, triphenylphosphite, tributylphenylphosphite, dodecylphenylphosphite, octylphenylphosphite

ABSTRACT: The heat stabilization of PET with alkylphenylphosphites at 270, 280, 290 and 300C was evaluated by determining the specific viscosity of 0.5% solutions of the polymer in tricresol and determining the terminal carboxyl groups. 0.01-5%, on weight of DMT, the phosphites (triphenyl-, tri-p-tert.butylphenyl-, p-dodecylphenyl-, and p-octylphenylphosphite) were added to the polymer as 1% solutions in ethylene glycol when the polycondensation was about 90% complete. 0.025-0.25%, especially the higher weight, of the tributylphenylphosphite stabilized the polymer in the 270-290C range;

4336-65

SESSION NR: AP4042738

At 290C the stabilizing effect was progressively reduced as indicated by a gradual increase in the number of -COOH groups and increase in specific viscosity. The use of 0.25% of the tributylphosphite in the polymer held at 270C or subjected to repeated heating and holding at 270C preserved the color of the polymer, significantly lowered the reduction in viscosity (from 21 to 7%) in comparison with the unstabilized polymer, and maintained the properties of the polymer practically the same as those of the initial unheated polymer. Orig. art. has: 3 tables and 3 figures.

ASSOCIATION: VNIIV

RECEIVED: 04May63

ENCL: 00

CODE: GC,

NR REF SOV: 004

OTHER: 003

2/2

L 16192-65 EWT(m)/EWG(v)/EWP(f)/T Pc-4/Pe-5 ESD(t)/ASD(m)-3 RM/GW
ACCESSION NR: AP4046282 S/0183/64/000/005/0013/0016

AUTHOR: Mikhaylov, N. V.; Pokrovskaya, N. B.

TITLE: A fiber based on chlorinated polyvinylchloride and nitrocellulose (vini-
tron)

SOURCE: Khimicheskiye volokna, no. 6, 1964, 13-16

TOPIC TAGS: polyvinylchloride, chlorinated polyvinylchloride, nitrocellulose,
synthetic fiber, mixed polymer fiber, fiber thermal stability, fiber chemical
stability, fiber shrinkage, fiber water repellency, fiber light stability

ABSTRACT: The purpose of the study was modification of chlorinated polyvinyl-
chloride (CPVC) which has high chemical but low thermal and light resistance,
by using a solution of mixed polymers. The composition of the optimal mixture,
the preparation of the mixture and the fiber and the latter's properties were in-
vestigated. Nitrocellulose (NC) was selected as admixture for its known influence
on CPVC thermal stability. Various ratios of the 2 polymers in acetone were
tested. Maximal stability (6-7 days) was found for a 70-30 ratio of CPVC:NC

and 1/2

L 16192-65

ACCESSION NR: AP4046282

3

percent by weight. A 24 percent concentration with a 130-200 sec. viscosity was used for the fiber. Microscopic examination revealed NC in the dispersion phase, and CPVC as the dispersion medium. The fiber was formed by the wet process. Acetone concentration also influenced the fiber strength; its optimum was 7-9%. The optimal temperature was found at 50-60C. A twisted fiber could then be formed from the fresh fiber in water at 80C. The new Vinitron fiber showed high chemical resistance (e.g. against mineral acids, oxidizers, some organic solvents) and retained its physico-mechanical properties under u.v. light. Its shrinkage was 3 percent compared to 55-57 percent for CPVC. Its operating temperature was 60-70 percent higher. It also resists wetting. It is being tried alone or mixed with wool for work clothes, industrial filters, etc. with good preliminary results. Orig. art. has: 3 figures and 4 tables

ASSOCIATION: VNIIV (All-Union Scientific Research Institute of Synthetic Fibers)

SUBMITTED: 29Jun63

ENCL: 00

SUB CODE: MT, OC

NO REF SOV: 010

OTHER: 003

rd 2/2

15708-65 EWA(r)/ETP(m)/ENP(j)/T Pc-l/Ps-5 ASD-3/ESD(6)/SSD/AFWL/ASD(m)-3

CESSION NR: AP4048283

S/0183/64/000/005/0022/0028

THOR: Mikhaylov, N. V.; Gorbacheva, V. O.; Ayzenshteyn, E. M.;
okhlova, N. S.; Petukhov, B. V.

TITLE: The influence of molecular weight upon the structure and properties of
lavan 15

SOURCE: Khimicheskiye volokna, no. 5, 1964, 22-28

TOPIC TAGS: synthetic fiber, polyester fiber, polyethylene terephthalate fiber,
molecular weight, fiber structure, fiber property, lavsan, polymer crystalliza-
tion, polymer amorphization, polymer orientation

ABSTRACT: The relation between structure and molecular weight was investi-
gated for lavsan, a polyester fiber, and a fiber from polyethylene terephthalate
(ETP) for the purpose of improving the properties of polyester fibers; PETP
assembles lavsan at certain stages. Crystallization kinetics, orientation and
morphology were determined. Polymers with a 16-30,000 molecular weight and

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5708-65
SESSION NR: AP4048263

ers of 17-25,000 molecular weight were investigated; the methods for determining molecular weight and properties are enumerated. Dilatometric curves between 40-140C and density measurements showed that an increase in molecular weight decreased polymer tendency to crystallization. The higher the molecular weight, the broader the interval of the glassforming range (51-96C). Amorphization of PETP increased with increasing molecular weight. So did the coefficient $\alpha = \frac{\Delta n_e}{\Delta n_o}$ (double refraction index) for determining the orientation of the isotropic fiber. The same applied to lavsan. Fiber strength paralleled molecular weight; was obtained at higher temperatures. Data on swelling and dissolution in percent sulfuric acid showed fibers with higher molecular weight more resistant to the attack of the acid. Such conditions of structural formation provide good possibilities for obtaining lavsan fibers of great strength. Orig. art. has: 7 figs and 1 table

SOCIATION: VNIV

MITTED: 03Aug63
S CODE: MT, GC

ENCL: 00
NO REF SOV: 010

OTHER: 004

2/2

IOVLEVA, M.M.; MIKHAYLOV, N.V.; MIKHELEVA, G.A.; SHABLYGIN, A.A.; POKH V. S.I.

Properties of gel particles in spinning solutions. Khim. volok.
no.6:41-44 '64.

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennoy
volokna.

МАЙБОРОВА, В.И.; МИХАЙЛОВ, Н.В.; МАКОВ, С.П.

Action of modifiers in the formation of viscose. Khim. volok.
no.6:45-50 '74.

(MIRA 18:1

1. Vs-soglasnyy nauchno-issledovatel'skiy institut iskusstvennykh volokna.

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; SEMENOVSKAYA, L.A.

Study of the structure of cellulose hydrate fibers by the
method of sorption of quaternary ammonium bases from
aqueous solutions. Vysokom. soed. 6 no.3:522-526 Mr'64.
(MIRA 17:5)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; NEMCHENKO, E.A.; DENISENKO, N.V.

Study of the fine molecular structure of cellulose hydrate
fibers by the determination of shear modulus. Vysokom.
soed. 6 no.3:527-533 Mr'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 8750-65 EWG(j)/EPA(s)-2/EAT(m)/EPT(a)/EPR/EMP(j)/T/EWA(h)/EWA(1) Po-h/Pr-h/
 Ps-h/Pt-10/Peb ASD(m)-3/RAEM(i)/ASD(p)-3/ESD(t) RM/WW
 ACCESSION NR: AP4043779 8/0190/64/006/008/1411/1414

AUTHOR: Nurmukhametov, R. N.; Bondareva, L. V.; Shigorin, D. N.;
 Tokareva, L. G.; Hikhaylov, N. V.

TITLE: Application of the luminescence method to determine the
 state of stabilizing additives in polymers

SOURCE: Vyssokomolekulyarnyye soyedineniya, v. 6, no. 8, 1964,
 1411-1414

TOPIC TAGS: di-8-naphthyl-n-phenylenediamine, di-8-naphthyl-n-
 phenylenediamine antioxidant, antioxidant, polypropylene fiber,
 polyamide fiber, di-8-naphthyl-n-phenylenediamine luminescence
 spectra, polymer additive, photooxidation inhibitor, polymer
 stabilizer, synthetic fiber

ABSTRACT: A study is made of the absorption and luminescence
 spectra of N,N'-di-2-naphthyl-p-phenylenediamine (I) used as a
 stabilizing additive possessing a light- and heat-protective action
 on polypropylene and polyamide fibers. From identifications of the
 luminescence spectra of solutions and fibers containing the addi-

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L. 8758-65
ACCESSION NR: AP4043779

tive it was concluded that a solid molecular solution is formed with the addition of I to the polymer. The fibers and solutions containing I were subjected to heat treatment and to gamma and ultraviolet irradiation. The consumption of I in the polymers was determined by recording the intensity of the initial fluorescence band. Solutions of I had absorption bands in the near UV region. The primary protective effect of I is related to its function as a filter absorbing the UV section of the light. The photochemical inhibiting effect according to Semenov is based on the termination of the reaction caused by free radicals. With the absorption of light and gamma quanta, and also with heat treatment, a molecule of I gives up an electron easily and various positive ions and ion radicals are formed. As a result of these treatments colored products are formed from I. It is assumed that the primary photochemical act in I was the photoionization, which apparently proceeds through the triplet state. From the ease with which the photooxidation of molecules of I occurred, it can be concluded that I is a strong antioxidant capable of inhibiting photooxidation processes in polymers. It can be seen from the observed similarity in the change of

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ACCESSION NR: AP4043779

2
fluorescence in fibers with stabilizing additives during UV or gamma irradiation and during heating in nitrogen, that there is a far-reaching analogy in the mechanism of photochemical and thermal destruction of polymers. Orig. art. has: 4 figures.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute)

SUBMITTED: 15 Aug 63

ATD PRESS 3113

ENCL: 00

UB CODE: OC, GC

NO REF SOV: 012

OTHER: 002

ed 3/3

EYFER, I.Z.; FAYNBERG, E.Z.; MIKHAYLOV, N.V.

Effect of the orientation of molecular chains on the dielectric anisotropy of fibers. Khim. volok. no.2:48-50 '65.

(MIRA 18:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

L 32996-65 EPF(c)/EPR/EWT(m)/ENP(j)/T Pc-4/Pr-4/Pa-4 JAJ/RM/WW

ACCESSION NR: AP5007419

S/0286/65/000/004/0059/0059

AUTHOR: Mikhaylov, N. V.; Tokareva, L. G.; Popov, A. G.; Kheyfits, L. A.; Virezub, S. P.

36
33
B

TITLE: A method for stabilizing polymers. Class 39, No. 168425.

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 59

TOPIC TAGS: polymer, stabilization, thermal stability

ABSTRACT: This Author's Certificate introduces a method for stabilizing polymers, e.g. polypropylene, and articles made from them. The polymers are made more resistant to heat and light by adding 2,6-di-(tetrahydrodicyclopentadienyl)-4-methylphenol to the polymer melt as a stabilizer. The Author's Certificate also covers a modification of this method in which the quantity of 2,6-di-(tetrahydrodicyclopentadienyl)-4-methylphenol added is 0.1-1.5% of the weight of the polymer.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skogo institut isskustvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers); Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh i natural'nykh dushistykh vesh-

Card 1/2

L 32996-65

ACCESSION NR: AP5007419

hestv (All-Union Scientific Research Institute of Synthetic and Natural Fragrant
substances)

SUBMITTED: 05Nov63

ENCL: 00

SUB CODE: MT, GC

REF SOV: 000

OTHER: 000

ard 2/2

M. V. AYDIN, N. V., YEFIMOVA, L. G., BYELOVA, L. F.

Stability of the diluted solutions of some fiber-forming polymers.
Khim. volok. no. 5 8 11 '65. (MIRA, 1965)

L. Vsesoyuznyy nauchno issledovatel'skiy institut iskusst. shogo
v Leningrad.

MINHAYLOV, M. I.; EVKIMY, Ye. M.; NIKOLAYEVA, N. I.; ORLOV, N. I.;
MAYBOCHKA, V. I.; ILINIKOVA, L. K.; BOCHKIN, V. I.

Properties and production methods of polymeric fibers. 6th. 1.
velok. no. 6:3-7. 1965. (MIRA 1P:12)

1. Year of entry into the scientific literature. 1965.
MIRA. 1965. 1P:12.

SHABLYGIN, M.V.:

Special
J no. 1: 1982.

GORBACHEVA, V.G.; MIKHAILOV, N.V.

Differential-thermal analysis of polymers. Vysokom.sped. 7 no.1:28-32 Ja '65. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennykh volokna.

0810-65 EIT(1)/EPA(s)-2/EIT(m)/EPF(s)/EWP(j)/EEC(t)/T Pc-4/Pr-4/Pt-10/

IJP(s) GG/RM

SSION NR: AP5008364

S/0190/65/007/003/0411/0416

ORS: Mikhaylov, N. V.; Faynberg, E. Z.; Eyfer, I. Z.

E: A method of determining orientation of polymer materials by the electric constant

CE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 3, 1965, 411-416

C TAGS: dielectric constant, polymer, orientation, anisotropy, polypropylene, tetrafluoroethylene, polyethylene terephthalate

TRACT: The authors have developed a method for determining the orientation of molecular chains in polymeric material, such as fibers, by measuring the dielectric constant. This technique assumes that the material is electrically anisotropic. This anisotropy may be represented by the index $n = E_{aa}/E_{rr}$, where E_{aa} is the dielectric constant in the axial direction, E_{rr} in the radial direction. Accurate measurements of E_{rr} with satisfactory precision may be made, but accurate determinations of E_{aa} are difficult. It is possible, however, to do this indirectly by taking two readings at different angles and by solving rather simple

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SESSION NR: AP5008364

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tions. The authors describe a device designed to permit measurement at
erent angles relative to the fiber axis. The advantage of this technique,
ontrasted with the optical method, is that measurements may be made at wave-
ths where the phase state and morphology of the fibers have no appreciable
ct on the anisotropy. The authors examined stretched and unstretched fibers
ifferent chemical composition: polyethylene terephthalate, polypropylene, 15
tetrafluoroethylene, and nitron. The results proved that the technique is
able for determining orientation. Reproducibility proved to be high. Actual
ured and computed values are given in a table in the article. Orig. art.
2 figures and 1 table.

CIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
kna (All-Union Scientific Research Institute of Synthetic Fibers)

TTED: 29Apr64

ENCL: 00

SUB COLS: MT, EM

EF SOV: 004

OTHER: 003

65
1/2

СИНАНД В.А., Т.Т.; МИХАЙЛОВ, Н.В.; МАЙБОРИЦА, В...

Preparation of a cross-linked capton fiber. (Zh. V. 2, 1966, 6:
712-714 '65) (Vol. 2, 1966, 6: 712-714)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut' iskusstven-
nogo volokna i opytnyy zavod Vsesoyuznogo nauchno-issledovatel'-
skogo instituta iskusstvennogo volokna.

PAPKOV, S.P.; YEFIMOVA, S.G.; MIKHAYLOV, N.V.; BYRKOVA, L.F.

Forms in which polyvinyl alcohol is separated from solution
when a precipitant is added. Vysokom. soed. 8 no. 1:69-75
Ja '66 (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstven-
nogo volokna. Submitted February 12, 1965.

ACC NR: AP6011436

SOURCE CODE: UR/0620/66/167/004/0873/0875

AUTHOR: Polyakov, N. V.; Mikhaylov, N. V.; Rebinder, P. A. (Academician)

ORG: Institute of Physical Chemistry, Academy of Sciences SSSR (Institut fizicheskoy khimii Akademii nauk SSSR)

TITLE: The influence of vibration on plastic deformation of metal

SOURCE: AN SSSR. Doklady, v. 167, no. 4, 1966, 873-875

TOPIC TAGS: lead, plastic deformation, metal deformation, vibration stress, vibration analysis

ABSTRACT: In a series of experiments designed to determine the influence of application of simultaneous deformation and vibrating forces on the plastic deformation of metal, metal samples were deformed by the simultaneous application of static compressive force and vibration (frequencies of 10-40 cps with vibration amplitude 0.6 mm, and 15-90 cps with amplitude 0.15 mm). Some experiments were performed with the simultaneous application of two superimposed frequencies: 40 cps with amplitude 0.6 mm, and a superimposed variable frequency from 40 to 90 cps with amplitude 0.15 mm). Lead was chosen as an experimental metal, since room temperature (20C) is a hot-working temperature for this metal.

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UDC: 539.378

ACC NR: AP6011436

Graphs of the kinetics of deformation were produced by an oscillograph. The investigations showed that the vibrational field intensified the process of plastic deformation. The resistance to deformation decreased, and the relative deformation increased by several times without disruption of the surface of the sample. An analysis indicated that increasing frequency of vibration caused an increase in the deformation and a reduction in the specific resistance to deformation. Increasing the amplitude of the vibration intensified the effect still further. At frequencies of 80—90 cps, frequency begins to play the most important role; at these frequencies, the surface of the sample showed smoothness characteristic of samples deformed without stress concentrations. Internal stresses are also distributed more evenly. Orig. art. has: 1 table and 3 figures.

SUB CODE: 20,11/ SUBM DATE: 10Aug65/ ORIG REF: 008

Card 2/2 H.S

MIKHAYLOV, Nik. Vas.; MIKHAYLOV, N.V.

Lowering the viscosity of dispersed systems by vibration. Dokl.
AN SSSR 155 no. 4:920-923 Ap '64. (MIRA 17:5)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom
A.N.Frumkinym.

24.4 000 1136, 1137, 1156

86002
S/020/60/135/003/010/039
BO19/BO77

AUTHORS: Mikhaylov, N Ya and Yagn, Yu I

TITLE: An Experimental Investigation of the Ultimate Strength of Thin-walled Nickel Tubes Under Various Loads, Stresses, Torques, and Inner Pressures

PERIODICAL: Doklady Akademii nauk SSSR, 1960 Vol 135, No 3.
pp. 545 - 548

TEXT: This paper was presented at the I Vsesoyuznyy s"yezd po teoreticheskoy i prikladnoy mekhanike (I All-Union Conference of Theoretical and Applied Mechanics) and is an extensive study of homogeneous and isotropic materials using different kinds of stress deviators. The tests were done with technical pure nickel tubes. A special testing machine made it possible to apply tension, torque, and inner hydraulic pressure to the specimens. The stress, change of area, angle of twist and the radial deformation were measured. The authors constructed a three dimensional sub space of the five dimensional space of the stress deviator by using the obtained data. These curves characterize the limit states of the

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An Experimental Investigation of the Ultimate Strength of Thin-walled Nickel Tubes Under Various Loads, Stresses, Torques, and Inner Pressures

S/O20/60/135-001/01/01
B019/B077

Material This type of presentation clearly shows that the limit states agree with the third criterion of the theory of strength. The authors conclude from a general analysis of the test data that a dependence of the ultimate strength of the material on the nature of loading and the force factors exist. There are 2 figures, 2 tables, and 3 references: Soviet and 1 German.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)

PRESENTED: June 17, 1960 by L. I. Sedov, Academician

SUBMITTED: June 15, 1960

and 2/2

ABRUMOV, Yu. V.: MIKHAYLOV, I. Ye.

USSR (600)

Electric Welding

Butt welding of tools with the aid of high-frequency currents. Stan. 1 instr.
23 no. 12, 1952.

Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

М.М.Х.В., Н.Я.

DEMIN, Yevgeniy Nikolayevich; MIKHAYLOV, N.Ya., retsenzent; VAYNTRAUB, D.A.,
inshtener, redaktor; BORODULINA, I.A., redaktor izdatel'stva;
SOKOLOVA, L.V., tekhnicheskiy redaktor

[Progressive methods of designing and preparing pressmoulds]
Progressivnye metody proektirovaniya i izgotovleniya pressform.
Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957.
126 p. (MLRA 10:7)
(Pressing machinery) (Plastics--Molding)

MIKHAYLOV, N. Z.

Nocturnal aerotherapy at the seashore. Probl. Tuberk., Moskva
No. 6, Nov.-Dec. 50. p. 59-61

1. Of Yalta Central Clinic Sanatorium No. 1 (Heads of Sanatorium---
Candidate Medical Sciences G. P. Fedorov and Honored Physician
REFSR V. K. Tarantayev).

CIML 20, 3, March 1951

MIKHAYLOV, N.V.; FAYNBERG, E.Z.; SEMENOVSKAYA, I.A.

Structure of cellulose hydrate fibers from data of the analysis of bases from the liquid phase. Vysokom. soed. " no. 1964 N '65.

IMIRA 10:1

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskus'svennoy volokna. Submitted December 25, 1964.

GUSATINSKIY, A.N.; KOLOSOVA, K.M.; MIKHAYLOV, N.S., NEMNOV, S.A.

Use of X-ray spectra for detecting lower silicon oxide. Izv.
AN SSSR. Neorg. mat. 1 n. 6:877-879 Ja '65. (MIRA 18:8)

1. Institut fiziki metallov AN SSSR i Vsesoyuznyy nauchno-
issledovatel'skiy i proyektnyy alyuminiyevy-magniyevyy institut.

ПАВЛОВ, С.П.; ИОВЛЕВА, М.М.; МИХАЙЛОВ, Н.В.

Drop formation in the flow of vis. ... in aqueous medium.
Khim. volok. no.4:40-43 '65. (MIRA, P.P.)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

L 00582-65 EWT(m)/EPT(o)/EWP(j)/T RM
COMMISSION NR: AP5021596

UR/0286/65/000/013/0069/0069

AUTHORS: Mikhaylov, N. V., Tokareva, L. O., Potemkina, Z. I., Korneyeva, A. M.,
Sidorina, Zh. A., Burmistrov, S. I.

TITLE: A method for thermal stabilisation of polyamides. Class 39, No. 172486

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 69

PIC TAGS: polyamide, thermal stability, stabiliser, triazine

ABSTRACT: This Author Certificate presents a method for thermal stabilisation of polyamides by adding stabilisers. To increase the assortment of materials, the derivatives of triazine, such as N-paraoxyphenyl-2, 4-diaminotriazine-1,3,5, or amino-4-para-anisidinotriazine-1,3,5 are used as stabilisers. The stabiliser is added in the amount of 0.5% by weight.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut ikhustvennogo volokna (All-Union Scientific Research Institute of Synthetic Fibers)

RECEIVED: 30Oct64

ENCL: 00

SUB CODE: 00

REF SOV: 000

OTHER: 000

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